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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/698,110	10/31/2003	William R. Dolbier JR.	UF-380	8916
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23557 7590 01/13/2005
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EXAMINER
WITHERSPOON, SIKARL A

ART UNIT	PAPER NUMBER
1621	

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/698,110

Applicant(s)

DOLBIER ET AL.

Examiner

Sikarl A. Witherspoon

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/8/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subramanian (US 6,087,543 and US 6,166,273 in combination).

The instant claims are drawn to a method of fluorination an aromatic compound or chloroaromatic compound by mixing at least one active fluorinating agent with at least one support, heating the mixture to a temperature of at least 300 or 350° C, and then contacting the mixture with the compound to be fluorinated. Further limitations include a reaction temperature of at least 400° up to at least 500° C.

Subramanian ('543 patent) teaches a process for making fluorinated benzene wherein chlorobenzene is contacted with a metal fluoride composition of the formula $(AgF)(MF_2)_x$, wherein M is manganese, iron, cobalt, nickel, copper, zinc, or a mixture thereof, at a temperature above 175° C, in order to remove chlorine from the starting material and to transfer fluorine from the metal fluoride composition to the starting material (abstract). The contacting of chlorobenzene with the metal fluoride composition is done in the vapor phase at a temperature from 250 to 450° C (col. 1, line 61 to col. 2, line 4).

The differences between Subramanian ('543 patent) and the present invention are that Subramanian does not teach any reactant but chlorobenzene, does not teach the fluorination occurring at a temperature above 450° C, i.e., at least 500° C, and does not expressly teach an example wherein the metal fluoride composition employed is the same as that which is claimed in the present invention.

With regard to the first two differences, although Subramanian does only teaches chlorobenzene as reactant, and reaction temperatures up to 450° C, in the '543 patent, Subramanian teaches a similar process in his '273 patent, and teaches the fluorination of compounds such as benzene, and pyridine, using a metal fluoride composition comprising cupric fluoride that may be supported or unsupported on supports such as fluorided alumina, fluorided magnesia, fluorided calcia and oxidatively stable carbon (abstract, and col. 1, line 45 to col. 2, line 33). The fluorination is conducted at a reaction temperature up to 550° C (table 1 at col. 4).

It would have been obvious to a person of ordinary skill in the art to combine the teachings found in the two patents to Subramanian, in order to apply the fluorination process taught therein to a broader class of compounds, and to provide guidance for conducting the fluorination at temperatures higher than 450° C, as per the '543 patent. A person of ordinary skill would have been motivated to conduct the fluorination at higher temperatures by the desire to produce a product having a higher degree of fluorination, i.e., a higher fluorine content, since, as suggest in the '543 patent at column 1, line 67 to col. 2, line 4, as the reaction temperature is raised above 300° C, the

fluorinated compound is *further* fluorinated to produce perfluorinated aromatic compounds.

With regard to the final difference mentioned above, while the '543 patent does not provide an example wherein the fluorination agent as recited in the present invention is used, both the '543 patent, and the '273 patent to Subramanian teach a metal fluoride composition that reads on the fluorinating agent of the present invention. A person of ordinary skill could select any combination of metals as suggest in the '543 patent and arrive at a metal fluoride composition that would effectively fluorinate the starting compound, and would also read on the fluorinating agent of the present invention, and as such, the fluorinating agent employed in the present invention is obvious.

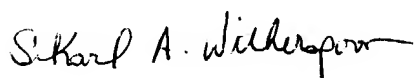
Specification

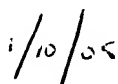
The title of the invention is not descriptive in that the present title represents a more narrow scope than that of the independent claim. For example, the present title suggests fluorination of aromatic compounds by only copper (II) fluoride and silver (I) fluoride; the independent claim of the invention includes a broader class of fluorinating agents. A new title is required that is clearly indicative of the invention to which the claims are directed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikarl A. Witherspoon whose telephone number is 571-272-0649. The examiner can normally be reached on M-F 8:30-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).





Sikarl A. Witherspoon
Patent Examiner
Technology Center 1600